

Educational imperatives of the evolution of consciousness: the Integral visions of Rudolf Steiner and Ken Wilber

Jennifer M Gidley*

Southern Cross University, Lismore, NSW, Australia

Published: *International Journal of Children's Spirituality*, Vol 12, No 2, August 2007. Pp. 117-135.

*j.gidley@planetaryfutures.com.au

Rudolf Steiner and Ken Wilber claim that human consciousness is evolving beyond the 'formal', abstract, intellectual mode towards a 'postformal', integral mode. Wilber calls this 'vision-logic' and Steiner calls it 'consciousness/spiritual soul'. Both point to the emergence of more complex, dialectical, imaginative, self-reflective and spiritual ways of thinking, living and loving. Very little 'evolution of consciousness' literature appears in educational discourses. This article distils hermeneutic fragments of psychological, cultural-historical and philosophical texts and begins to examine education in this light. This evolutionary perspective may illuminate the emergence of contemporary understandings of spirituality as alternatives both to 'formal' secular and 'formal' religious education. A novel educational perspective is introduced based on a contemporised Australian interpretation of Steiner education seen through the lens of Wilber's integral framework. This creative, 'transmodern' educational vision offers one way forward to consciously facilitate the emergence in children of more life-promoting, integral, spiritually aware forms of consciousness.

Keywords: *Evolution of consciousness; Integral; Education; Steiner; Wilber; Gebser, Postformal*

Introduction

"In the human self-consciousness... thought contemplates itself. The essence of the world arrives at its own awareness... at the highest stage, as thought living within itself, which is the highest manifestation of spirit." (Steiner, 1973 (1914), p. 171-172).

"For the fact is, this is the dawning of the age of vision-logic, the rise of the network society, the postmodern, aperspectival, internetted global village. Evolution in all forms has started to become conscious of itself. Evolution, as Spirit-in-action, is starting to awaken on a more collective scale. Kosmic evolution is now producing theories and performances of its own integral embrace. (Wilber, 2000b, p. 193-194).

The concept of evolution was originally seeded by several integrally-oriented German Idealists and Romantics, towards the end of the 18th century. Almost a

century before Charles Darwin published his *Origin of Species* (1859), Johann Gottfried von Herder published *This Too a Philosophy of History for the Formation of Humanity* (1774), setting out the notion that “there exist radical mental differences between historical periods, that people's concepts, beliefs, sensations, etc. differ in important ways from one period to another” (Forster, 2001). Herder's seminal ideas on the evolution of consciousness were extended in manifold ways by Goethe, Hegel and Schelling. In particular, Schelling's contribution foreshadowed current notions of ‘conscious evolution’ (Teichmann, 2005). Although inspired by earlier ‘unitive’ worldviews, these integral philosophers also pointed *forward*, beyond the limitations of both pre-modern, ‘mythic’ consciousness and ‘formal’, modernist rationality, towards a more conscious awakening of a ‘postformal’, integral consciousness. David Ray Griffin refers to this as ‘constructive’ or ‘reconstructive’ postmodernism, which Arran Gare traces to Schelling (Gare, 2002; Keller & Daniell, 2002). Yet the world was not ready. In parallel, the Industrial Revolution—a key marker of early modernity—was advancing its technological powers with tremendous socio-cultural impact: both progressive and disruptive. Supported by the positivist worldview of scientific materialism and analytic philosophy, mechanistic notions of human nature cast a shadow on idealist and spiritual notions of human consciousness and education. Since Darwin, the dominant ‘evolution discourse’ has privileged materialistic ‘bio-mechanical’ worldviews, while more philosophical and spiritual worldviews have been pushed to the margins.

However, the notion that human consciousness is evolving beyond materialistic, instrumental rationality to more integral, more spiritual consciousness has been courageously carried forward (Aurobindo Ghose, 1990 (1914); Gebser, 1986; Steiner, 1966, 1993 (1923); Teilhard de Chardin, 2004 (1959)). The imperative to actually *educate* for conscious evolution, was also seeded during last century (Aurobindo Ghose, 1990 (1914); Montessori, 1973; Steiner, 1965, 1976).

More recently, awareness of the role of education in awakening new forms of consciousness has begun to arise under the terms ‘integral’ and ‘holistic’ education. (Hart, 2001b; R. Miller, 2000). As yet, the imperative to educate children with the evolution of consciousness in mind has been largely overlooked in mainstream education.

This paper summarises research on the evolution of consciousness from a range of perspectives, then focuses on components of the comprehensive works of Steiner and Wilber as being arguably the most integrated approaches to this discourse. Genealogical threads can be traced from their work back to the German Idealists’ attempts to re-integrate philosophy, art, science and Spirit.

A critique of both Steiner's and Wilber's interpretive communities is that they may be insufficiently ‘open’ to dialoguing with other approaches. Tobin Hart drawing on Korzybski's dictum “the map is not the territory”, stresses the importance of encountering the ‘other’ in a way that “keeps our maps open-ended and dynamic”. (Hart, 2001b) I hope that my ‘inter-textual dialogue’ will contribute to keeping the ‘meta-maps’ of Steiner and Wilber open and dynamic by illuminating them through each other's eyes, facilitating a broader valuing of their significant contributions. This dialogue is also grounded in personal experience¹ working from an innovative Australian interpretation of Steiner.

This approach could inspire 21st century education to more consciously nurture the emerging global evolution of postformal, integral consciousness.

Educational context – pre-modern, modern and postmodern approaches

“An education devoted entirely to the development of abstract and technical mental facility, which lacks any vital connection with human meaning and substance, becomes itself a main agent of cultural impoverishment and the displacement of human concerns.” (Sloan, 1983, p. 196)

Prior to the Industrial Revolution, which embedded modernist ideas into the socio-cultural fabric of Western society, education for children was not a formal process, even in the Western world. Children were enculturated by their extended families and cultures and only the children of the wealthy—who could afford private tutors—or who wished to become clerics, had any ‘formal’ education. Formal, publicly funded, ‘mass education’ began little more than 200 years ago in Europe with Germany leading much of the world. (Holborn, 1964) Thus, education of children has undergone two phases, roughly aligned with macro-phases of socio-cultural development:

- an informal phase which lasted from the beginnings of early human culture to the Industrial Revolution,
- a formal phase of mass education of children in schools, modelled on factories.

Arguably, education is in a transition from formal to postformal, somewhat lagging behind other socio-cultural shifts arising from postmodern impulses (see Table 1 below). This simple theoretical model is not intended to suggest that there has been a simple, unilinear or unidimensional development of either culture or education. The reality is, of course, much more complex, multi-dimensional and recursive.

Table 1: Socio-Cultural and Educational Macro-Phases

	Prehistory to Late 18th Century	Late 18th Century to 20th Century	20th - 21st Century and Beyond
Social-Cultural discourse	Pre-Modern	Modern	Postmodern
Education History	Informal Enculturation	Formal School Education	Postformal Education

The early 20th century pioneering contributions of Steiner and Montessori in Europe, followed by Aurobindo in India, were ahead of their times, based on evolutionary spiritual philosophies, yet not attached to denominational religions. All have developed into global school movements—with Steiner / Waldorf and Montessori being the most extensive.

The 1970's to 1990's saw a flourishing of alternative educational modes including home-schooling, online learning, holistic education, transformative education, futures education, and a raft of educational reforms within mainstream settings. These approaches are based on earlier 'progressive' theories such as Jean Piaget's constructivism, John Dewey's experiential education, Paulo Friere's critical pedagogy, as well as more spiritually oriented approaches. All are critical of the formal, modernist 'factory-model' of mass education. Most seek to broaden education beyond the simple information-processing model based on a mechanistic view of the human being, to a more holistic, multifaceted, embodied approach. Yet not all honour the spiritual needs or the multi-layered nature of the developing child, as part of a consciously evolving human species. Joe Kincheloe and Shirley Steinberg have undertaken important pioneering work in bringing together critical and postmodern threads in their approaches to post-formality in education, yet they have a critique of modernist conceptions of developmentalism. (Kincheloe, Steinberg, & Hinchey, 1999)

Post-formality is life-affirming as it transcends modernism's disdain and devaluation of the spiritual... It is possible that postmodernism and its socio-cognitive expression, post-formality, will lead us across the boundary dividing living and non-living. (Kincheloe, Steinberg, & Hinchey, 1999, p. 71-72)

Awareness of the impact of postmodern socio-cultural shifts has led several educational writers to posit a noticeable change in children and young people that appears to be correlated with the transition from modernism to postmodernism. Various terms have been introduced such as 'postmodern child', (Elkind, 1998) 'millennial child', (Schwartz, 1999) 'tomorrow's children', (Eisler, 2000) and '21st century children'. (Almon, 2000) These framings are somewhat 'patchy' as they do not substantially integrate the evolution of consciousness literature, or its educational significance.

Numerous educational researchers, globally, are now advocating the inclusion of spirituality in education (de Souza, 2006; Glazer, 1994; J. Miller, P., 2000; Milojevic, 2005; Palmer, 1998; Tacey, 2003). In the UK this has been facilitated by changing national education policies, prompting government sponsored reviews of approaches, such as Steiner education, that include spiritual awareness from a non-denominational perspective (P. A. Woods, Ashley, & Woods, 2005). While individual researchers are beginning to explore existential issues (Webster, 2004); "beyond logic" (Hyde, 2005) and "beyond rationality" (Stables, 2004), there is little evidence of substantial engagement with the *evolution of consciousness* literature in 'spirituality in education' discourses. The following section will briefly summarise the state of play on this research, particularly as it concerns the future of education.

Tobin Hart and Ron Miller are among those few who reflect postmodern and critical perspectives while also honouring the spiritual and evolutionary needs of children.

“Modern schooling does not serve the spiritual unfoldment of the child. It serves capitalism, nationalism, and a reductionist worldview.” (Miller, 1999, p. 190)

Tobin Hart bemoans the counter-evolutionary weight of contemporary mainstream schooling, which he says has “focused on adaptation to the status quo rather than its transformation within (person) and without (culture and society).” (Hart, 2006, p. 120) By contrast, he points towards an education designed “for us to assist ourselves in our own evolution, enabling us to align with the rising currents of creation.” (Hart, 2006, p. 105)

Evolution of consciousness – circles within circles

Through a hermeneutic study of research into the evolution of consciousness since the late 18th century, I propose that discourses supporting the emergence of new structures of consciousness could be organised into several themes. Space will only allow a brief scan of these large and complex territories.

Discourses that include notions of conscious, active spiritual development

These discourses come primarily from the religious and spiritual traditions. Most involve a combination of study of spiritual texts, inner discipline, and the practice of love and compassion. The majority of spiritually based discourses within the academic context, still arise from traditional religious sources, many of which are theistic, even monotheistic, such as the Abrahamic religions: Christianity, Judaism and Islam. A critique is that many have pre-modern, dogmatic or sectarian notions of spiritual development, not having fully integrated the contributions of the modern human sciences or the pluralism of postmodernity. New forms of ‘postmodern spirituality’ are also being proposed (Benedikter, 2006).

Diverse spiritual perspectives may be placed on a spectrum, where at one end we have Theism—involving a belief in a Transcendent Reality, often referred to as God. At the other end we have Pantheism—involving a belief in the Immanence of God within nature and the world. In the middle of this spectrum, there is a complex spiritual stance referred to as Panentheism—the belief that “the Being of God includes and penetrates the whole universe, so that every part of it exists in Him, but (as against Pantheism) that His Being is more than, and is not exhausted by, the universe.” (Towne, 2005, p. 780)

While Panentheism is often associated with Christianity, it does have other neutral forms, reflecting an interwoven, dialectical relationship between transcendence and immanence, that can be referred to as Nondual Spirituality (Wilber, 2000c) or neutral Monism (Steiner, 1964 (1918)). These terms may sound

complex, abstract and confusing, however, it is proposed in this paper that the emerging integral consciousness will favour complex, dialectical, non-dualistic stances which will gradually reduce the ongoing conflict inherent in all dualist positions. This may throw some light on recent Australian research. Gary Bouma has identified a fundamental shift since the mid-1970s, in regard to religious authority, from the dominance of *reason* to the dominance of *experience and emotion*. He claims this has superseded the 'Protestant shift' from *tradition* to reason (Bouma, 2006).

In addition, recent American research on 'wisdom' from developmental psychology (Arlin, 1999; Cartwright, 2001; Cook-Greuter, 2000; Sinnott, 1994; Sternberg, 2001) and education (Hart, 2001a, 2001b; Kincheloe, Steinberg, & Hinchey, 1999; Miller, 1999; R. Miller, 2000) points towards the potential integration of postformal notions of cognition with love, reverence and spiritual development.

"Wisdom is distinguished from bare intellect especially by its integration of the heart... We might even think of wisdom as the power of the mind to honor the insights of the heart." (Hart, 2001b, p. 5).

Discourses that identify the static nature of formal thinking and promote the emergence of more fluid, life-enhancing, 'post-formal' thinking

The modernist, formal, scientific worldview, with its static notions of a mechanical, 'building block' universe of atoms—based on Newtonian physics—is gradually being replaced by postmodern, postformal worldviews. These more fluid, life-oriented worldviews are grounded in Einstein's theories of relativity, quantum physics, and more recently, chaos and complexity theories. In parallel there has been a shift in scientific fundamentals from a dominant emphasis on physics to new biological discourses. Arising from this biological turn are new notions of life as being 'complex', 'self-organising' (Jantsch, 1980; Varela, Thompson, & Rosch, 1993), and 'emergent' (Goodenough & Deacon, 2006).

In addition, early 20th century philosophers—Steiner, William James and Dewey—attempted to integrate these emerging organic, natural, biological understandings with positivist, analytical discourses. Henri Bergson's *élan vital*, Alfred North Whitehead's process philosophy and Husserl's *lifeworld* were also inspired by these shifts. Interestingly, such ideas were already appearing a century prior, in the leading edge thinking of Goethe's 'delicate empiricism', Schiller's aesthetics and Schelling's 'nature philosophy'. According to Steiner, Schelling "...was inspired by the feeling that the ideas that appear in his imagination are also the creative forces of nature's process." (Steiner, 1973 (1914)).

Ironically, in most educational settings, formal-analytical, and reductionist-pragmatic, philosophical discourses still hold academic power over the more aesthetic, postformal, postmodern philosophies, such as those of Jacques Derrida or Giles Deleuze. Although often described as negative or nihilistic philosophies, this may be an overly simplistic view as both Derrida and Deleuze also entertain a strongly affirmative element in their writings.

“To affirm... to create new values which are those of life, which make life light and active.” Deleuze, cited in (St. Pierre, 2004, p. 287).

According to philosopher, Roland Benedikter, the little-known late works of the French postmodernists point to an emerging postformal, ‘postmodern spirituality’ on the other side of deconstruction (Benedikter, 2006).

Philosophical approaches that point to a ‘constructive’ or ‘reconstructive’ postmodernism tend to draw on the organic, process philosophies of Bergson and Whitehead, for example the *SUNY Series in Constructive Postmodern Thought* edited by David Ray Griffin. Recent attempts have been undertaken to find conceptual bridges between what has been called the ‘cosmological and poststructuralist postmodernisms’ (Gare, 2002; Keller & Daniell, 2002).

Discourses based on notions of the increasing complexification of human thinking.

These include two sub-streams: cultural evolutionary (phylogenetic) and individual developmental (ontogenetic).

- From the cultural evolution perspective, notions of the evolution of the species—and thereby human consciousness—have been primarily dominated by Darwinian scientific discourses, in spite of their philosophical origins in 18th century Romanticism and Idealism. (Teichmann, 2005) Since the turn of the 20th century, several researchers have begun to re-integrate the biological evolution discourses with spiritual perspectives of consciousness. Steiner began by applying Haeckel’s theories of the relationship between ontogeny and phylogeny in biology to the evolution of culture and consciousness. Several outstanding 20th century thinkers have pointed to the increasing complexity of consciousness as an evolutionary quality (Aurobindo Ghose, 1990 (1914); Gebser, 1986; Steiner, 1966; Teilhard de Chardin, 2004 (1959)). Recent research proposes that we are now reaching a stage of development where we can consciously participate in evolution (Bamford, 2003; Gidley, 2006; Lachman, 2003; Russell, 2000; Thompson, 1998).
- Since the 1970’s developmental psychology researchers focusing on individual development, have identified *cognitive* stages beyond Piaget’s formal operations. Under the collective term postformal these researchers identify various types of reasoning including dialectical, complex, creative, relativistic, systemic, metasystemic, and wisdom (Arlin, 1999; Commons, Richards, & Kuhn, 1982; Sinnott, 1994; Sternberg, 2001). Some of these researchers specifically explore links between cognitive and spiritual development (Cartwright, 2001; Sinnott, 1994). In addition, there are adult developmental psychologists who focus more broadly than cognition, emphasising the development of the whole *self*. Susanne Cook-Greuter, building on Loevinger’s and Maslow’s foundational work on higher ego development, proposes several ‘post-conventional’ stages, including the ‘unitive ego stage’ (Cook-Greuter, 2000).

Discourses that integrate two or more of the others

In addition to Hart and Ron Miller, who integrate the spiritual and cultural evolutionary discourses, two developmental psychologists integrate the spiritual, developmental, and also linguistic-philosophical (Cook-Greuter, 2000; Kegan, 2002). Cook-Greuter claims that “the language habit” which is what the French poststructuralists are drawing attention to, “can become a barrier to further development if it remains unconscious, automatic and unexamined.” (Cook-Greuter, 2000, p. 228). Kegan, who refers to postformal, integral thinking as ‘fifth order’ thinking, proposes that earlier and later stages of it are reflected in deconstructive and reconstructive postmodernisms, respectively (Kegan, 2002).

From my research into these various discourses—spiritual development studies, postmodern philosophy, new sciences, cultural evolution and developmental psychology—two of the most comprehensive, integrative approaches appear to be those of Rudolf Steiner and Ken Wilber. Both integrate all of the above-mentioned perspectives, pointing to how new ways of thinking can overcome the dualism inherent in much formal discourse. This paper draws on their evolutionary approaches. Table 2, below, maps three of the levels they identify against other approaches. Note that all these theorists identify prior stages to these three and Cook-Greuter, Steiner and Wilber also identify higher stages, which it is beyond the scope of this paper to elucidate.

Table 2: Socio-cultural and Educational Macro-Phases in Relation to Developmental and Evolutionary Discourses

Psycho-Socio-Cultural Discourses	Pre-modern (prehistory to late 18th century)	Modern (late 18th century to present)	Postmodern (20th century and emergent)
Education History	Informal Enculturation	Formal School Education	Postformal Education
Steiner's Levels of the Mind/Soul	Sentient Soul (picture consciousness)	Intellectual Soul (abstract consciousness)	Consciousness Soul (spiritual consciousness)
Piaget's Developmental Stages	Concrete Operations	Formal Operations	(Neo-Piagetian) Post-formal Dialectical
Gebser's Structures of Consciousness	Mythic (imaginative)	Mental Mode (abstract)	Integral A-perspectival (spiritual)
Cook-Greuter's Developmental Stages	Pre-conventional	Conventional	Post-conventional
Wilber's Developmental Stages	Pre-rational Mythic	Egoic-Rational	Post-rational Vision-logic

Sources: (Commons, Richards, & Kuhn, 1982; Cook-Greuter, 2000; Gebser, 1986; Steiner, 1983 (1909-10); Wilber, 2004)

Further support for the notion of an emerging change in culture and consciousness comes from a study undertaken in the USA over ten years, reporting on the rise of 'integral culture', and identifying almost a quarter of Americans as 'cultural creatives'. (Ray, 1996) In addition, a 43-nation 'World Values Survey', including Scandinavia, Switzerland, Britain, Canada and the United States concluded that: "a new global culture and consciousness have taken root and are beginning to grow in the world"—the postmodern shift (Elgin, 1997).

So what is integral consciousness? An interweaving of characterisations

As is evident above, there is a profusion of terminology in this emergent field both between and even within disciplinary boundaries. Although there is now substantial research pointing to the current emergence of at least *one* new stage of cognition or consciousness beyond what is generally recognised as the 'formal' stage, individual disciplines frame this uniquely. The term postformal is utilised by numerous developmental psychologists and a few educationists. The term *integral* is used in a variety of ways in diverse literature, but in this paper, according to the usage of Gebser, characterised below. Wilber has coined the term *vision-logic* to describe this stage and I favour it because of its dialectical nature. Other terms are also in use. I am using the terms postformal, integral and vision-logic interchangeably for the purposes of this discussion, in a *postformal* attempt to demonstrate the multiperspectival, complex, dialectical nature of this new stage. Significant transdisciplinary research is currently underway in Australia to "review and revision the complexity of postformal thinking" with a view to aligning educational transformation with considerations arising from integral literature (Hampson, Forthcoming).

Ken Wilber has made a significant contribution to the discourse by drawing attention to the emergence of integral consciousness, contemporising and popularising it. He notes that what unites all the above-mentioned perspectives is that they all point to something that goes beyond formal, modernist, abstract, intellectual thinking. His vision-logic foregrounds the dialectical relationship between binary logic and imaginative, visionary, or mythic thinking, as identified elsewhere (Hart, 1998; Sloan, 1983).

"Where perspectival reason privileges the exclusive perspective of the particular subject, vision-logic *adds up all the perspectives*, privileging none, and thus attempts to grasp the integral, the whole, the multiple contexts." (Wilber, 2000b, p. 167)

He also makes an important link between vision-logic and postmodernism.

"... vision-logic (dialectical, dialogical, integral-aperspectival, interpenetration of opposites, intersubjective, feeling / vision) remains the cognitive goal, and aperspectival foundation of the moments of truth of the postmodern theorists." (Wilber, 2000c, p. 679, note 5)

Wilber draws strongly on Gebser's extensive research on what he called 'integral-aperspectival' consciousness. Gebser speaks of it as becoming conscious in oneself and being able to integrate all four previous structures of consciousness, which he terms: archaic, magical, mythic and mental. He says it is four dimensional—and could be symbolically represented as "a sphere in motion". (Gebser, 1986)

"The aperspectival consciousness structure is a consciousness of the whole, an integral consciousness encompassing all time and embracing both man's distant past and his approaching future as a living present..." (Gebser, 1986, p. 6)

In a similar way in which Wilber stresses the importance of not confusing post-rational vision-logic with pre-rational, mythic, thinking, Steiner made a clear distinction between unconscious altered states and the stage arrived at through “disciplined meditative work” where this “inner work consists in a heightening, not a lowering of the ordinary consciousness.” (Steiner, 1973 (1914), p. 467). Gebser’s parallel phrase is “an intensification of consciousness”. (Gebser, 1986, p. 99)

Gebser’s major contribution, apart from formally identifying this structure, was to note its emergence in the world in various fields in the first half of last century.

Prior to both Wilber and Gebser, Steiner had already begun in the early 1900’s, to identify the emergence of a stage of consciousness beyond abstract, formal, intellectual thinking. Steiner noted that this ‘self-reflective consciousness’ is not only able to perceive and know the world but to become conscious of itself. He called this “Consciousness Soul, because the Ego is then able to transform its inner experiences into conscious knowledge of the outer world”. (Steiner, 1983 (1909-10)). He says that the true nature of the self, the ‘I’ “reveals itself in the consciousness soul... An inner activity of the I begins with a perception of the I, through self-contemplation.” (Steiner, 1939). This resembles the “double I” identified by the late postmodernists: particularly Foucault and Derrida (Benedikter, 2006). Wilber similarly uses the abbreviation ‘I-I’ to refer to the ‘I’ who reflects on itself, sometimes also called the ‘witness’ (Wilber, 2000c, 694, note 18).

Steiner refers to consciousness soul as the highest manifestation of the personal soul, or ‘I’, beyond which development moves into the more purely spiritual realm (Steiner, 1983 (1909-10)). Wilber echoes this, calling vision-logic “the very highest reaches of the mental realms... but beyond them lie the supramental and properly transrational developments.” (Wilber, 2000b, p. 26-27).

From my research it appears that, of the three, Steiner has contributed the most substantial material in terms of how we can actively develop this new stage of consciousness (Steiner, 1966, 1983 (1909-10), 1993 (1923)), and how we can educate for it, including dozens of volumes of educational lectures.

What might Steiner education ⇔ Wilber’s integral have to offer?

There is remarkable convergence between the philosophical and theoretical worldviews of Steiner and Wilber. In practice, however, a significant divergence is that Steiner’s indications for education have been implemented in schools over many decades while Wilber’s theories have not yet been substantially applied to education (Steiner, 1965, 1976; Wilber, 2000a). Yet Wilber’s integral framework, called AQAL—referring to all quadrants, all levels, all lines, all states and all types—is arguably the most comprehensive contemporary *theoretical* attempt to develop an all-inclusive approach to analysing the complex problems of our times. It is beyond the scope of this article to elucidate components of the latest iteration of Wilber’s model. Notwithstanding the critiques that could be levelled at his—or indeed any—attempt to undertake such a task, it has significant merit

as a tool for analysing the 'integrality' of other approaches. Although Wilber is apparently keen to see an integral education theory develop, based on his AQAL framework, this project is as yet in its infancy, but beginning to be applied, particularly in the tertiary education sector, mainly in the USA (Esbjorn-Hargins, 2005; Fisher, 2007; Gunnlaugson, 2004).

Synergies

A more detailed summary of this analysis demonstrates that Steiner education more than adequately fulfils Wilber's criteria for AQAL integral (Gidley, In Preparation). In summary:

- Although Steiner does not refer to *quadrants* in the way that Wilber does, Steiner education honours both 'inner and outer' of the 'individual and the collective', which is the simple basis of Wilber's four quadrants (Gidley, 2005).
- As mentioned earlier they are both developmental approaches (honouring individual development and cultural evolution) with their notions of consciousness *levels* being substantially parallel with one other. See Table 1 earlier.
- Both recognise notions of multiple *lines* of ability similar to Howard Gardner's multiple intelligences. (Gardner, 1996) Both also indicate that as many of these as possible need to be engaged by the education process if the full development of the potential of each individual is to be addressed.
- There are very strong synergies between their notions of *states* of consciousness where the major states of waking, dreaming and deep sleep, take on a deeper spiritual significance than in the everyday sense.
- Both refer to *types* as components of the human constitution. Wilber refers eclectically to various contemporary approaches such as Myers-Briggs and enneagrams. While Steiner refers primarily to the four temperaments, contemporising the original classical Greek concepts in a way that is internally consistent with his whole approach and assists in the understanding of child behaviour.
- The inclusion of '**integral life practices**' as injunctions for personal and spiritual development, are also central to both approaches. Steiner schools attend to this through their multi-modal learning environments, while Wilber offers intensive adult development workshops in 'integral life practices'.

A post-critical integration of Steiner and Wilber

This brief analysis attempts to distil core components of Steiner education theory and practice in the light of Wilber's integral theory in a way that, if their two approaches could be viewed as an 'integral metasystem', some common critiques of their work could be addressed and their synergistic core messages more appropriately valued. Wilber has been critiqued as giving insufficient detail or being 'too abstract' (Thompson, 1998) and Steiner education could be critiqued as 'outmoded' or 'too insular'.

“There are bound to be tensions between holding to the original texts of the founder (constancy) and adaptation to new developments and different cultures and environments, and there are undoubtedly pressures to remain insular.” (G. Woods, O'Neill, & Woods, 1997)

A tendency to ‘universalise’ the original Waldorf curriculum rather than use Steiner’s indications as a guide to creating unique, particular, local exemplars is something that Steiner himself warned against. Ron Miller recognises Steiner/Waldorf education as “a superb expression of a more holistic worldview”, yet he also notes its reliance on “techniques, models, and proven results” rather than “creative self-transcendence: the test of radical openness to new experience and novel conditions.” (R. Miller, 2000, p. 10).

There are paradoxes surrounding the very notion of a Waldorf curriculum. In my view the ongoing use of the term *Waldorf*—the name of the cigarette factory, whose workers Steiner was requested to educate in 1919—needs some serious 21st century deconstructing. Even more significant is that Steiner himself stressed on many occasions that the ‘curriculum’ was not a fixed abstract thing but needs to be created from moment to moment. Several examples of such statements could be represented by the following quotes:

“In educating, what the teacher does can depend only slightly on anything he gets from a general, abstract pedagogy: it must rather be newly born every moment from a live understanding of the young human being he or she is teaching.” (Steiner, 1985 (1919)).

“We then have to approach the curriculum in quite a different way. Our approach to it in fact has been such that we must put ourselves in the position of being able to create it ourselves at any moment...” (Steiner, 1976, p. 189).

Although Steiner did give specific, particular direction for the first school he founded, I do not believe that he intended for the curriculum of the original school to be mimicked for almost 100 years, regardless of cultural context. This would have gone against his central impulse to sense the inspiration of the *Zeitgeist* or ‘Spirit of the Times’. However, while much of the *content* of that original curriculum may be largely irrelevant to many schools globally in the 21st century, the *processes* and general indications he gave are as relevant today as they were then—or indeed even more so—and could, *if contemporised*, be widely applicable with cultural sensitivity.

There are also significant moves from within both interpretive communities to address the critiques of their approaches. Wilber himself has continually revised his theoretical framework in response to critical responses, and is currently working to facilitate the implementation of his ideas in numerous fields. There are also innovative moves within many Steiner/Waldorf schools worldwide to adapt as well as remain ‘true to the original message’.

Core components of an education for vision-logic

Steiner's educational approach covers all of the macro-perspectives that are included in Wilber's AQAL model. Additionally, research suggests that several methods, processes or techniques that Steiner introduced are beginning to be applied in mainstream education in the USA. However, such attempts are often piecemeal and not necessarily cognizant of their original pedagogical purpose, or their potential evolutionary significance. More concerning is that isolated methods have been appropriated and applied as externals of this approach, without being coupled with the equally significant, less tangible, internals of the inner landscape of teachers and children. This balancing of outer observable life with the inner life is a hallmark of Wilber's framework.

Complementing this *external* bias, my educational vision summarised below emphasises the most significant *internals*, and is synthesised from:

- the above 'Wilberian'-integral analysis of Steiner's educational approach;
- selected hermeneutic fragments from other leading-edge educational theorists;
- brief heuristic narratives from my own experience enacting Steiner education and theorising postformal, integral education.

To summarise my integral vision for an education that would facilitate the healthy evolution of consciousness, I propose the following themes as being central to a caring, revitalised, wise education. These themes are discussed more fully in a further paper that is currently in preparation (Gidley, In Preparation).

The significance of *love* in 'classroom' relationships

My vision of educating children for and with love reflects the centrality of love, care, relationships and community that is expressed in all the major religions and spiritual traditions. In most such traditions human love is a reflection of the Divine Love or God, and thus is an important way to bring spirituality into education. The broad hermeneutic analysis of evolution of consciousness research presented earlier demonstrated how these traditions contribute substantially to this discourse. As such, love should not be underestimated as a significant developmental and evolutionary force. Several contemporary educators have emphasised its importance (Noddings, 2003; Palmer, 1998; Zajonc, 2005). Examples from theory and practice of how love might increasingly infuse school education have been developed elsewhere (Gidley, In Preparation).

The significance of bringing concepts to *life* through the imagination

The 20th century turn from primarily mechanistic to more organic worldviews, as reflected in the new sciences and postmodern philosophical discourse, has a co-evolutionary relationship with the emerging postformal, integral consciousness.

The resuscitation of school education that is required if it is to adequately integrate all aspects of the evolution of consciousness research, depends on a deep understanding of how the creative imagination can be more fully utilised. The significance of cultivating the imagination in education has been stressed by numerous educators (Egan, 1990; Eisner, 1985; Gidley, 2001; Neville, 1989; Sloan, 1983; Whitehead, 1967 (1916)). Such an enlivening of education may even assist the urgent resuscitation of a dying planetary ecosystem.

The significance of multi-modal learning modes in developing *wisdom*

Probably the most acknowledged path to postformal, integral, wisdom-thinking, is through the cultivation of multi-perspectival, versatile standpoints. Numerous learning modes and approaches can be explored through education engaging with multiple intelligences, creativity and aesthetics as steps to wisdom. I also wish to draw attention here to ways of knowing that have been even more subjugated in educational discourse. In the 'serious business' of education and learning, squeezed on either side by the audit culture and high stakes testing, such concepts as laughter (Johnson, 2005), play (Derrida, 2001; Ota, Erricker, & Erricker, 1997; Schwartz, 1999), dancing (Pridmore, 2004) and happiness (Noddings, 2003) seem remote. It is encouraging to see these broad human literacies appearing at the postformal table of educational offerings.

The significance of how we *voice* our language with children

In this electronic age of 'voice'-mail, 'chat'-rooms, and 'talking' computers, perhaps the least valued of the evolutionary forces that could carry education into an authentic future, is the human voice itself. This fourth theme in my educational vision—the education of voice and speech as expressions of *living* language—is actually that which potentially integrates all the others. No matter how caring, imaginative and interesting our approach to children may be, unless we can convey all this to them through our choice of words, our tone of voice, the timing of our silences, and how we transmit our authentic *presence*, we may not effectively facilitate the potential transformation we would like. Several significant 20th century thinkers have drawn attention to the developmental and/or evolutionary significance of self-reflection and creativity in languaging (Abbs, 2003; Barfield, 1985; Derrida, 2001; Gangadean, 1998; Thompson, 1998). However, this notion has not yet been significantly engaged with in educational theory to my knowledge, other than by Sri Aurobindo, and Steiner (Steiner, 1959).

In summary, these four qualities—love, life, wisdom and the human voice—are *central* to Steiner education but in mainstream education, may seem *peripheral* to the 'real task' of information acquisition. The first three are also present in Wilber's theoretical framework though its strength is in its extensive development of the wisdom aspect through its multi-perspectival approach geared strongly to the development of higher-level cognition as a foundation for self-development. Although Wilber demonstrates the significance of love—in his

writings on Eros and Agape; and imagination/vision—as a dialectic with rationality in vision-logic—these aspects have not yet been implemented in the substantial way they have in Steiner education. Wilber’s relationship to *voice* is more complex. Obviously Wilber has a strong, indeed passionate voice in his writing and he also honours the spoken word through his live appearances and online dialogues. However, he does not explicitly identify speech and language—as Steiner does—as being significant in regards to education for conscious evolution.

An educational Voice for Love, Life and Wisdom

My research suggests that an educational integration of love and reverence, with life-giving conceptual imagination and creative multi-modal methods, transmitted through an authentic human voice, lays a strong foundation for the emergence of postformal, integral consciousness. While formal religious education is obviously one way to bring spirituality into children’s lives, this non-denominational, non-sectarian, integrated approach is another way—perhaps increasingly suited to many children and young people in a postmodern world.

This paper attempts to create a new reconstructed postmodern or *transmodern* approach to education that focuses on love, life and wisdom, enacted by teachers who authentically voice their *living presence*. I have drawn principally on the approaches of Steiner and Wilber using Wilber’s integral lens to contemporise and postmodernise Steiner education in practice. Wilber’s theoretical model can point to important broad parameters that are relevant now in the 21st century; Steiner’s approach, if freed of its early 20th century German ‘cobwebs’, is still ahead of its time in its potential for integrally educating the whole child in a way that could facilitate the evolution of consciousness not just for individuals but for planetary culture as a whole. In these pressing times of global distress, it is imperative that we begin to facilitate the awakening of integral, planetary consciousness through nurturing love, life and wisdom in education.

Notes

1. *Personal Reflection*

As founder and pioneer of a Rudolf Steiner school in a rural Australian setting during the 1980s/90s, I attempted to contemporise Steiner education for that particular time/place. I now see this as a ‘reconstructive postmodern’ interpretation of Steiner. Thus, my implementation of Steiner was less “traditional Waldorf” and more “creative self-transcendence... radical openness to new experience and novel conditions.” (R. Miller, 2000) I worked directly and authentically from Steiner’s original teachings rather than any set Waldorf curriculum. I believe this is what Steiner intended teachers to do. Although I had not encountered Wilber’s framework, I intuitively deconstructed and reconstructed Steiner’s indications only reflecting back on this later, when I discovered Wilber’s writings.

Notes on contributor

Jennifer Gidley is an Educational Psychologist and Futures Researcher with the Centre for Children and Young People, Southern Cross University, Lismore, Australia and a Research Fellow at the Global Dialogue Institute, Haverford College, Philadelphia, USA. She has published widely in educational futures, including co-editing: *The University in Transformation: Global Perspectives on the Futures of the University* (Bergin & Garvey, 2000) and *Youth Futures: Comparative Research and Transformative Visions* (Praeger, 2002).

Acknowledgements

I wish to acknowledge the important contribution of my friend and colleague, Gary Hampson to the refinement of some of the ideas in this paper, through our many varied, and inspiring, hermeneutic conversations.

References

- Abbs, P. (2003). *Against the Flow: The Arts, Postmodern Culture and Education*. London: RoutledgeFalmer.
- Almon, J. (2000). The Children of the 21st Century. In C. Clouder, S. Jenkinson & M. Large (Eds.), *The Future of Childhood*. Gloucestershire: Hawthorn Press.
- Arlin, P. K. (1999). The Wise Teacher: A Developmental Model of Teaching *Theory into Practice*, 38(1), 12-17.
- Aurobindo Ghose, S. (1990 (1914)). *The Life Divine*. Pondicherry, India: Lotus Light.
- Bamford, C. (2003). *An Endless Trace; the Passionate Pursuit of Wisdom in the West*. New York: Codhill Press.
- Barfield, O. (1985). *History in English Words*. Herndon, VA: Lindisfarne Books.
- Benedikter, R. (2006). *Postmodern Spirituality: How to find a Rational Alternative to the Global Turn to Religion? Dimensions, Developments and Perspectives*. Innsbruck: International Civic Society Initiative for the UN Decade Education for Sustainable Development (2005-2014).
- Bouma, G. (2006). *Australian Soul: Religion and Spirituality in the 21st Century*. Cambridge: Cambridge University Press.
- Cartwright, K. B. (2001). Cognitive Developmental Theory and Spiritual Development. *Journal of Adult Development* 8(4), 213-220.
- Commons, M. L., Richards, F. A., & Kuhn, D. (1982). Systematic and Metasystematic Reasoning: A Case for Levels of Reasoning beyond Piaget's Stage of Formal Operations *Child Development*, 53(4), 1058-1069.
- Cook-Greuter, S. (2000). Mature Ego Development: A Gateway to Ego Transcendence. *Journal of Adult Development*, 7(4), 227-240.
- de Souza, M. (2006). Educating for Hope, Compassion and Meaning in a Divisive and Intolerant World. *International Journal of Children's Spirituality*, 11(1), 165-175.

- Derrida, J. (2001). Structure, Sign, and Play in the Discourse of the Human Sciences. In *Writing and Difference* (pp. 278-294). London: Routledge.
- Egan, K. (1990). *Romantic Understanding: The Development of Rationality and Imagination, Ages 8-15*. London: Routledge.
- Eisler, R. (2000). *Tomorrow's Children*. Boulder: Westview Press.
- Eisner, E. (1985). *The Educational Imagination: On the Design and Evaluation of School Programs* (2nd ed.). New York: Macmillan.
- Elgin, D. (1997). *Global Consciousness Change: Indicators or an Emerging Paradigm: The Millennium Project*.
- Elkind, D. (1998). Schooling the Postmodern Child. *Research Bulletin*, 3(1).
- Esbjorn-Hargins, S. (2005). Integral education by design: how integral theory informs teaching, learning and curriculum in a graduate program. *ReVision*, 28(3).
- Fisher, R. M. (2007). Ken Wilber and the Education Literature: Abridged Annotated Bibliography [Electronic Version]. *Paths of Learning* from http://www.pathsoflearning.org/resources/writings/Ken_Wilber.pdf.
- Forster, M. (2001). "Johann Gottfried von Herder" In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy*: Stanford University.
- Gangadean, A. (1998). *Between Worlds: the Emergence of Global Reason*. New York: Peter Lang.
- Gardner, H. (1996). Probing more Deeply into the Theory of Multiple Intelligences. *NASSP Bulletin*, 80(583), 1-7.
- Gare, A. (2002). The Roots of Postmodernism: Schelling, Process Philosophy, and Poststructuralism. In C. Keller & A. Daniell (Eds.), *Process and Difference: between Cosmological and Poststructuralist Postmodernisms*. New York: SUNY Press.
- Gebser, J. (1986). *The Ever-Present Origin*. Athens, Ohio: Ohio University Press.
- Gidley, J. (2001). *The Dancer at the Edge of Knowledge: Imagination as a Transdisciplinary Force*. Paper presented at the The 2nd International Philosophy, Science and Theology Festival, Grafton, NSW, Australia.
- Gidley, J. (2005). *The Evolution of Consciousness: Honouring the Inner Dimensions of Future Education*. Paper presented at the Global Soul, Global Mind and Global Action--Futuring from Survival to Thrival, Tamsui, Taipei, Taiwan
- Gidley, J. (2006). Spiritual Epistemologies and Integral Cosmologies: Transforming Thinking and Culture. In S. Awbrey, D. Dana, V. Miller, P. Robinson, M. M. Ryan & D. K. Scott (Eds.), *Integrative learning and Action: A call to Wholeness*: Peter Lang Publishing.
- Gidley, J. (In Preparation). Education for Evolving Consciousness: Voicing the Emergency for Love, Life and Wisdom
- Glazer, S. (Ed.). (1994). *The Heart of Learning: Spirituality in Education*. New York: Jeremy P. Tarcher / Putnam.
- Goodenough, U., & Deacon, T. W. (2006). The Sacred Emergence of Nature. In P. Clayton (Ed.), *Oxford Handbook of Science and Religion*. Oxford: Oxford University Press.
- Gunnlaugson, O. (2004). Towards an Integral Education for the Ecozoic Era Sage Publications. *Journal of Transformative Education*, 2(4), 313-335.
- Hampson, G. (Forthcoming). Integral Reviews Postmodernism: The Way Out is the Way Through *Integral Review: A Transdisciplinary and Transcultural Journal for New Thought, Research and Praxis*

- Hart, T. (1998). A Dialectic of Knowing: Integrating the Intuitive and the Analytic. *Encounter: Education for Meaning and Social Justice*, 11, 5-16.
- Hart, T. (2001a). *From Information to Transformation: Education for the Evolution of Consciousness*. New York: Peter Lang.
- Hart, T. (2001b). Teaching for Wisdom. *Encounter: Education for Meaning and Social Justice*, 14(2), 3-16.
- Hart, T. (2006). From Information to Transformation: What the Mystics and Sages Tell Us Education Can Be. In S. Inayatullah, I. Milojevic & M. Bussey (Eds.), *Neohumanist Educational Futures: Liberating the Pedagogical Intellect*. Tamsui, Taipei: Tamkang University Press.
- Holborn, H. (1964). *A History of Modern Germany, 1648-1840*. Princeton: Princeton University Press.
- Hyde, B. (2005). Beyond Logic - Entering the Realm of Mystery: Hermeneutic Phenomenology as a Tool for Reflecting on Children's Spirituality. *International Journal of Children's Spirituality*, 10(1), 31-44.
- Jantsch, E. (1980). *The Self-Organising Universe: Scientific and Human Implications of the Emerging Paradigm of Evolution*. New York: Pergamon Press.
- Johnson, H. (2005). Counteracting Performativity in Schools: the Case for Laughter as a Qualitative Redemptive Indicator *International Journal of Children's Spirituality*, 10(1), 81-96.
- Kegan, R. (2002). Epistemology and 4th Order Consciousness. *What is Enlightenment, Fall-Winter*
- Keller, C., & Daniell, A. (2002). *Process and Difference: Between Cosmological and Poststructuralist Postmodernisms*. New York: SUNY Press.
- Kincheloe, J., Steinberg, S., & Hinchey, P. H. (1999). *The Post-Formal Reader : Cognition and Education (Critical Education Practice)*. New York: Falmer Press, Taylor and Francis.
- Lachman, G. (2003). *A Secret History of Consciousness*. Great Barrington, MA: Lindesfarne Books.
- Miller, J., P. (2000). *Education and the Soul: Towards a Spiritual Curriculum*. Albany, NY: State University of New York Press.
- Miller, R. (1999). Holistic Education for an Emerging Culture. In S. Glazer (Ed.), *The Heart of Learning: Spirituality in Education*. New York: Putnam.
- Miller, R. (2000). Education and the Evolution of the Cosmos. In R. Miller (Ed.), *Caring for New Life: Essays on Holistic Education*. Brandon, Vermont: The Foundation for Educational renewal.
- Milojevic, I. (2005). Critical Spirituality as a Resource for Fostering Critical Pedagogy. *Journal of Futures Studies*, 9(3), 1-16.
- Montessori, M. (1973). *From Childhood to Adolescence*. New York: Schocken Books.
- Neville, B. (1989). *Educating Psyche: Emotion, Imagination, and the Unconscious in Learning*. Melbourne: Collins Dove.
- Noddings, N. (2003). *Happiness and Education*. Cambridge: Cambridge University Press.
- Ota, C., Erricker, C., & Erricker, J. (1997). The Secrets of the Play Ground. *Pastoral Care in Education*, 15(4), 19-24.
- Palmer, P. (1998). *The Courage to Teach*. San Francisco: Jossey-Bass.
- Pridmore, J. (2004). 'Dancing cannot start too soon': Spiritual Education in the Thought of Jean Paul Friedrich Richter. *International Journal of Children's Spirituality*, 9(3), 279-291.

- Ray, P. (1996). The Rise of Integral Culture. *Noetic Sciences Review*, 37(Spring), 4.
- Russell. (2000). *The Global Brain Awakens: Our Next Evolutionary Step*. Melbourne: Element Books.
- Schwartz, E. (1999). *Millennial Child: Transforming Education in the Twenty-first Century*. Anthroposophic Press: New York.
- Sinnott, J. D. (1994). Development and yearning: Cognitive aspects of spiritual development. *Journal of Adult Development*, 1(2), 91-99.
- Sloan, D. (1983). *Insight-Imagination: the Emancipation of Thought and the Modern World*. Westport, CT: Greenwood.
- St. Pierre, E. A. (2004). Deleuzian Concepts for Education: the subject undone. *Educational Philosophy and Theory* 36(3), 283-296.
- Stables, A. (2004). Responsibility beyond Rationality: the Case for Rhizomatic Consequentialism. *International Journal of Children's Spirituality*, 9(2), 219-225.
- Steiner, R. (1939). *Occult Science: An Outline* (1909). London: Rudolf Steiner Press.
- Steiner, R. (1959). *Speech and Drama, Lectures 1924*. New York: Anthroposophic Press.
- Steiner, R. (1964 (1918)). *The Philosophy of Freedom*. Spring Valley, NY: Anthroposophic Press, Inc.
- Steiner, R. (1965). *The Education of the Child: Lectures, 1909*. London: Rudolf Steiner Press.
- Steiner, R. (1966). *The Evolution of Consciousness as Revealed through Initiation Knowledge: Lectures (1923)*. London: Garden City Press.
- Steiner, R. (1973 (1914)). *The Riddles of Philosophy*. Spring Valley: The Anthroposophic Press.
- Steiner, R. (1976). *Practical Advice to Teachers: Lectures, 1919*. London: Rudolf Steiner Press.
- Steiner, R. (1983 (1909-10)). *Metamorphoses of the Soul Paths of Experience, Volume 1*. London: Rudolf Steiner Press.
- Steiner, R. (1985 (1919)). *An Introduction to Waldorf Education: The* Anthroposophic Press.
- Steiner, R. (1993 (1923)). *Knowledge of the Higher Worlds: How is it Achieved*. London: Rudolf Steiner Press.
- Sternberg, R., J. (2001). Why Schools Should Teach for Wisdom: The Balance Theory of Wisdom in Educational Settings. *Educational psychologist*, 36(4), 227-245.
- Tacey, D. (2003). *The Spirituality Revolution: the emergence of contemporary spirituality*. Sydney: Harper Collins.
- Teichmann, F. (2005). The Emergence of the Idea of Evolution in the Time of Goethe. *Research Bulletin*, 11(1), 1-9.
- Teilhard de Chardin, P. (2004 (1959)). *The Future of Man*. New York: Image Books, Doubleday.
- Thompson, W. I. (1998). *Coming into Being: Artifacts and Texts in the Evolution of Consciousness*. London: MacMillan Press Ltd.
- Towne, E. A. (2005). The Variety of Panentheisms. *Zygon: Journal of Religion and Science*, 40(3), 779-786.
- Varela, F., Thompson, E., & Rosch, E. (1993). *The Embodied Mind: Cognitive Science and Human Experience*. Cambridge, Massachusetts: The MIT Press.

- Webster, S. (2004). An existential framework of spirituality. *International Journal of Children's Spirituality*, 9(1).
- Whitehead, A. N. (1967 (1916)). *The Aims of Education*. New York: Free Press.
- Wilber, K. (2000a). *A Theory of Everything: An Integral Vision for Business, Politics, Science and Spirituality*. Boulder: Shambhala.
- Wilber, K. (2000b). *Integral Psychology: Consciousness, Spirit, Psychology, Therapy*. Boston: Shambhala.
- Wilber, K. (2000c). *Sex, Ecology, Spirituality*. Boston: Shambhala.
- Woods, G., O'Neill, M., & Woods, P. A. (1997). Spiritual Values in Education: Lessons from Steiner. *The International Journal of Children's Spirituality*, 2(2), 25-40.
- Woods, P. A., Ashley, M., & Woods, G. (2005). *Steiner Schools in England*. Bristol: Department for Education and Skills.
- Zajonc, A. (2005). *Toward an Epistemology of Love* Paper presented at The 4th Philosophy, Science and Theology Festival, Grafton, NSW, Australia.